MSE PSE-SW5G44DNR

5 Port PoE Switch & Extender

(Repeat Ethernet and PoE)

AC+DC+PoE TRIPLE INPUT

USER'S MANUAL

MSTRONIC CO., LTD.

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1. General Information

The PoE (Power Over Ethernet) Switch is a AC+DC+PoE triple input model, provides four 10M/100M/1000M TX ports with PoE PSE function plus one 10M/100M/1000M TX up-link port with PoE PD function. It allows power from PoE power souring equipment (PSE) and delivers power to PoE powered device (PD), which is compliant with IEEE802.3af and IEEE802.3at standard to receive and deliver both Ethernet data and DC power through the traditional UTP or STP cable. The PoE Switch can extend Ethernet data and DC power up to 200 meters. This manual will help you install and maintain the PoE switch. Installation of the PoE switch is very easy and you will begin to operate as soon as the device is powered up.

2. Hardware Description

Front Panel

The Front Panel of the PSE-SW5G44DNR consists of 5 x RJ-45 Ethernet ports, 12 x LED port indicators, and one ON/OFF switch (for AC power).

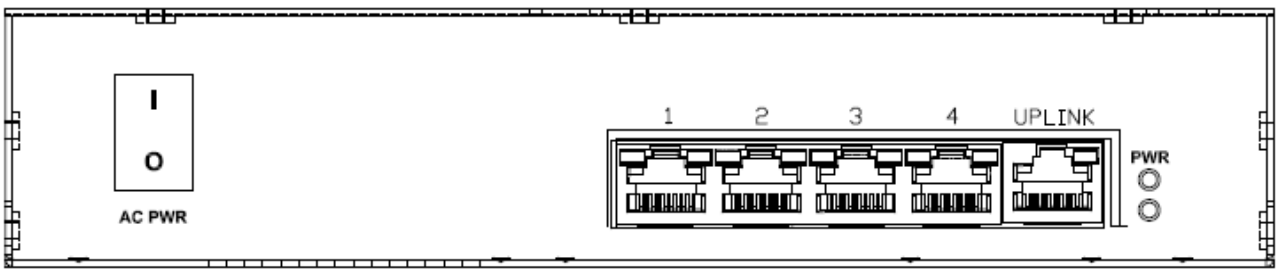


Figure 2-1. The front panel of PSE-SW5D44DNR

There are 12 LEDs on the PoE switch to indicate the status of power and signal. The following section describes the functions of each LED indicator.

*POWER LED

LED	STATUS	Description
Power	Green	LED ON when power input (DC IN on rear panel or Port 5 on front panel) has valid power supplied.
	Red	The indicator is unused on PSE-SW5G44DNR
	Off	No power supplied.

*SWITCH LED (the right indicator on RJ45)

LED	STATUS	Description
P1~P5 Link/Act	Green	A network device is detected (1000Mbps), but no communication activity is detected.
	Green Blinking	This port is transmitting to, or receiving package from another device at 1000Mbps.
	Yellow	A network device is detected (10Mbps or 100Mbps), but no communication activity is detected.
	Yellow Blinking	This port is transmitting to, or receiving package from another device at 10Mbps or 100Mbps.
	Off	No device is detected.

*PoE LED (the left indicator on RJ45)

P1~P4 PoE	Yellow	A valid Powered Device (PD) is detected and delivering power on this port.
	Off	No PD is detected on this port.
P5 PoE	Yellow	Powered via all 4 data pairs.
	Yellow Blanking	Powered via 2 data pairs. (1,2,3,6 or 4,5,7,8 are all acceptable).
	Off	No power is detected on this port.

*Rear Panel

The AC inlet, DC input terminal and 2 Ventilation fan are located at the rear panel of the PSE-SW5G44DNR. The device will work with AC in the range 90-264VAC, 47-63Hz. It will also work with DC 48V(40V~57V).

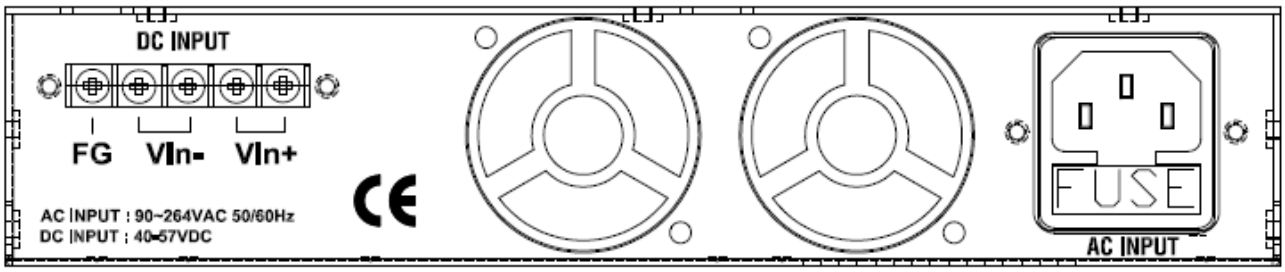


Figure 2-1. The rear panel of PSE-SW5D44DNR

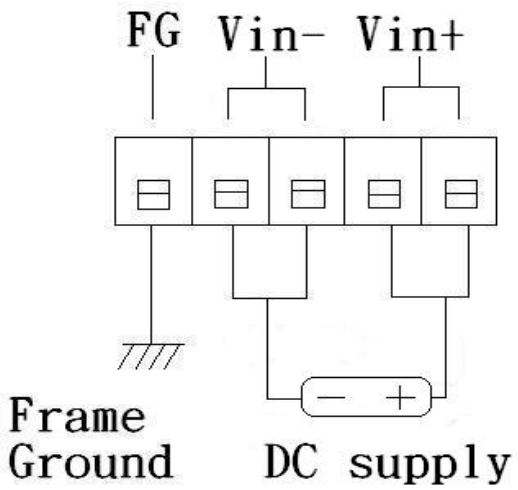
All of the PoE switches allow for the possibility to be powered by another PoE source (42.5~57VDC) on port 5 (UPLINK).

For PoE operation, make sure your power supply offers at least 75W for 4x 802.3af PoE port, or 150W for 4x 802.3at PoE port. If the PSE-SW5G44DNR is not powered in the above designated input voltage, it will only function as an Ethernet switch without PoE output.

If powered on DC terminal block, please make sure the input current is not over 10A. If powered on port 5, make sure the input current is not over 2A.
Ports 1~4 will deliver DC power over the Ethernet cable, with the connection as:
* Data pair A on line 1 and 2
* Data pair B on line 3 and 6
* Data pair C plus V+ on line 4 and 5
* Data pair D plus V- on line 7 and 8

Port 5 may get DC power over the Ethernet cable, with the connection as:
* Data pair A plus V+ /V- on line 1 and 2
* Data pair B plus V-/V+ on line 3 and 6
* Data pair C plus V+/V- on line 4 and 5
* Data pair D plus V-/V+ on line 7 and 8

The DC terminal block on rear panel should be wired as shown below:



*Ethernet Port Wiring

The PoE switch family supports one RJ-45 uplink (port 5 with PoE PD) and four RJ-45 ports (port 1~4 with PoE PSE) with automatic MDI/MDI-X crossover, auto-sense for the speed and duplex for 10Base-T, 100Base-TX or 1000Base-T connection. Automatic MDI/MDI-X crossover allows you to connect to other devices (switches, hubs, or workstations etc.), without regard to using straight-through or crossover cabling.

Port 1 to 4 provides Power over Ethernet function that delivers DC power through the data pairs C & D (pair 4,5 and pair7,8) to the PD. Port 5 provides Power Device function that receive power from 4 pairs or 2 pairs Ethernet cable.

The following tables describe the wiring diagram of straight-through and crossover cabling. The crossover cables simply cross-connect the transmit lines at each end to the receive lines at the opposite end.

Straight-through Cabling	
Pin 1	Pin 1
Pin 2	Pin 2
Pin 3	Pin 3
Pin 6	Pin 6
Pin 4	Pin 4
Pin 5	Pin 5
Pin 7	Pin 7
Pin 8	Pin 8

Cross-over Cabling	
Pin 1	Pin 3
Pin 2	Pin 6
Pin 3	Pin 1
Pin 6	Pin 2
Pin 4	Pin 7
Pin 5	Pin 8
Pin 7	Pin 4
Pin 8	Pin 8

Connect an Ethernet cable into any switch port and connect the other side to your attached device. The Link/Act LED (green or yellow) will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator.
If a port LED is off, you should check for connectivity problems between that port and the network device connected.

The maximum cable length for 10/100/1000BaseT with Cat 5 twisted pair cables is typically 100m (328 ft.).

*PD Port Wiring

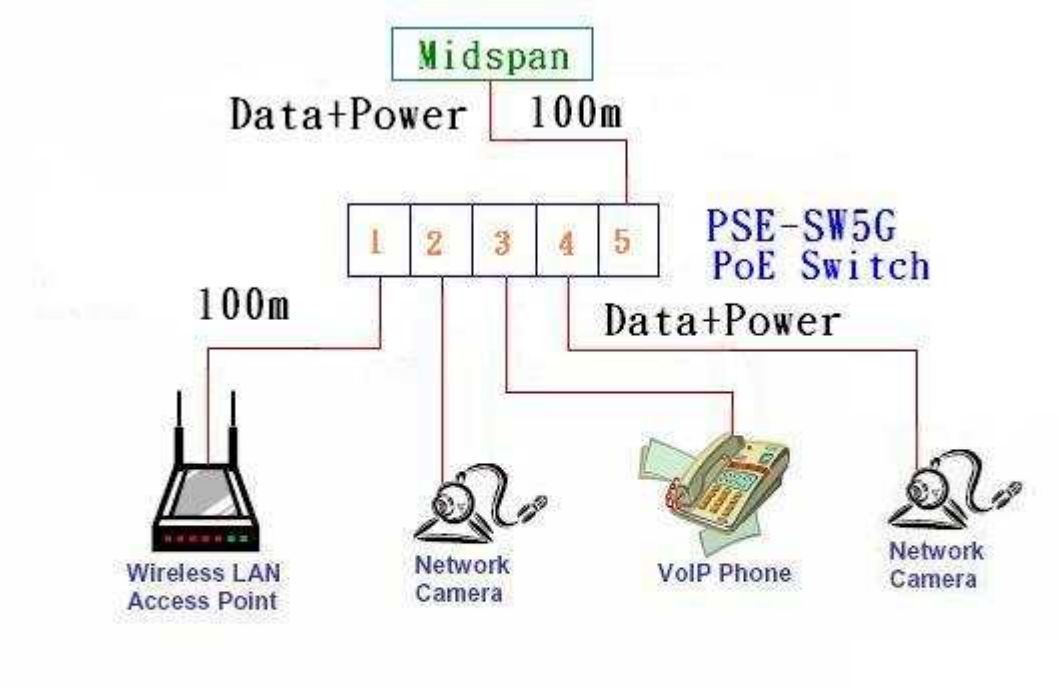
Port 1 to 4 provides PoE injection function with maximum 35W ability to power up the powered device using the straight-through or cross-over Ethernet cable.
The PoE switch follows the IEEE802.3af Alternative B mode connector assignment. The following table shows pin assignment of alternative A and B for the Power Source Equipment.

Conductor	Alternative A (MDI-X)	Alternative A (MDI)	Alternative B (All)
1	Negative Vport	Positive Vport	
2	Negative Vport	Positive Vport	
3	Positive Vport	Negative port	
4			Positive Vport
5			Positive Vport
6	Positive Vport	NegativenVport	
7			Negative Vport
8			Negative Vport

Be sure the twisted pair cable is bound with the standard RJ-45 pin, especially the pin 4, 5, 7 and 8. If the RJ-45 is bound with the wrong pin number, the PoE switch will not recognize the PD and won't deliver DC power to the PD. The yellow PoE LED will light up when the cable is correctly connected. Refer to the **LED Indicator** section for descriptions of each LED indicator. If a port LED is off, you should check for connectivity problems between that port and the network device connected.

*Network Application

The PoE Switch can receive power from a PoE midspan and provide power to the PD which follows the IEEE 802.3af/at standard in the network. The PoE Switch can be installed in a more appropriate position for better performance to extend Ethernet to 200 meters. The following figure is an example of a network application for PoE Switch.



3. Technical Specifications

Standards	IEEE802.3/IEEE802.3u standards/IEEE802.3ab (10 base-T/100base-TX/1000base-T)
Ports	5 ports with PoE (4 PSE & 1 PD), support auto-crossover & auto-polarity
Transmission speed	1000Mbps (1000base-T).100 Mbps (100base-TX), 10 Mbps(10base-T) Auto-negotiation
Switch technology	Store-and-forward
Protocols	CSMA/CD
Flow control	IEEE802.3x (full-duplex), back pressure (half-duplex)
Data transmission rate	1488000pps for1000base-T, 148800pps for 100base-T, 14880pps for 10base-T
Address table	1K MAC address table, self-learning
Connect	RJ-45
PoE port	Port 1-4, PSE auto power management, Pin assignment as below: data pair A(1,2), data pair B(3,6), data pair C with V+(4,5), data pair D with V-(7,8) Port 5, 4 pairs PD
Maximum PoE power	Port 1-4: IEEE802.3af – 16.8W IEEE802.3at – 35W Port 5: 90W (802.3at 2 event classification)

PSE disconnect mode	DC disconnect
PoE auto detection	IEEE802.3af & IEEE802.3at (2 event classification signaling)
PoE protection	Over-temperature, over-current, over/under voltage
LEDs	*Link/Activity (Green ON/ Green Blinking @1000Mbps, Yellow/Yellow Blinking @10M/100Mbps) *PoE (Yellow) port 1-4 ON - PD detect Port 5(UPLINK) ON – 4 pair power, Blinking-2 pair power *POWER Green-normal
Power input	*Port 5(UPLINK) from network switch or midspan *DC input:42-57VDC *AC input:90-264VAC,47-63Hz,150W max.
Power consumption	8W without PD loading
Power efficiency	75% at full load (@48V typical)
Operating temperature	-20℃~ +85℃
Operation humidity	90% relative humidity, non-condensing
Storage temperature	-55℃~+105℃
Dimension	44mm(H)x210mm(W)x199mm(D)